Real - time Monitoring and predicting the Bio-Optical and Physical properties in Mindoro Straits Region

Robert Arnone, Sherwin Ladner, Sonia Gallegos

1) Naval Research Laboratory, Stennis Space Center, MS 39426

http://www7333.nrlssc.navy.mil/cruise_support/indone

Remote Sensing Participation:

- Ocean Color Bio-optical and SST Products used to track the physical processes in straits
  - SST
  - Chlorophyll
  - Backscattering
  - Total Absorption
  - CDOM Absorption
  - Phytoplankton Absorption
- Directory of real time – MODIS - Imagery
  - Daily Imagery
  - 7 day latest pixel Composite
  - Weekly
  - Monthly
- Model (NCOM) and Imagery Linkages
  - Backscattering / CHl advection 24 hour and hourly
  - KMZ -
- WIKI – RS/ Imagery real time ..

MODIS – Surface absorption 443

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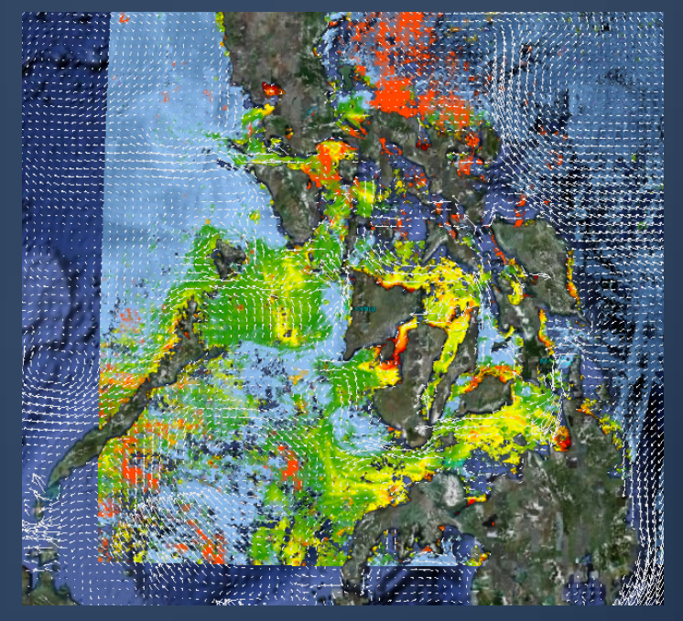
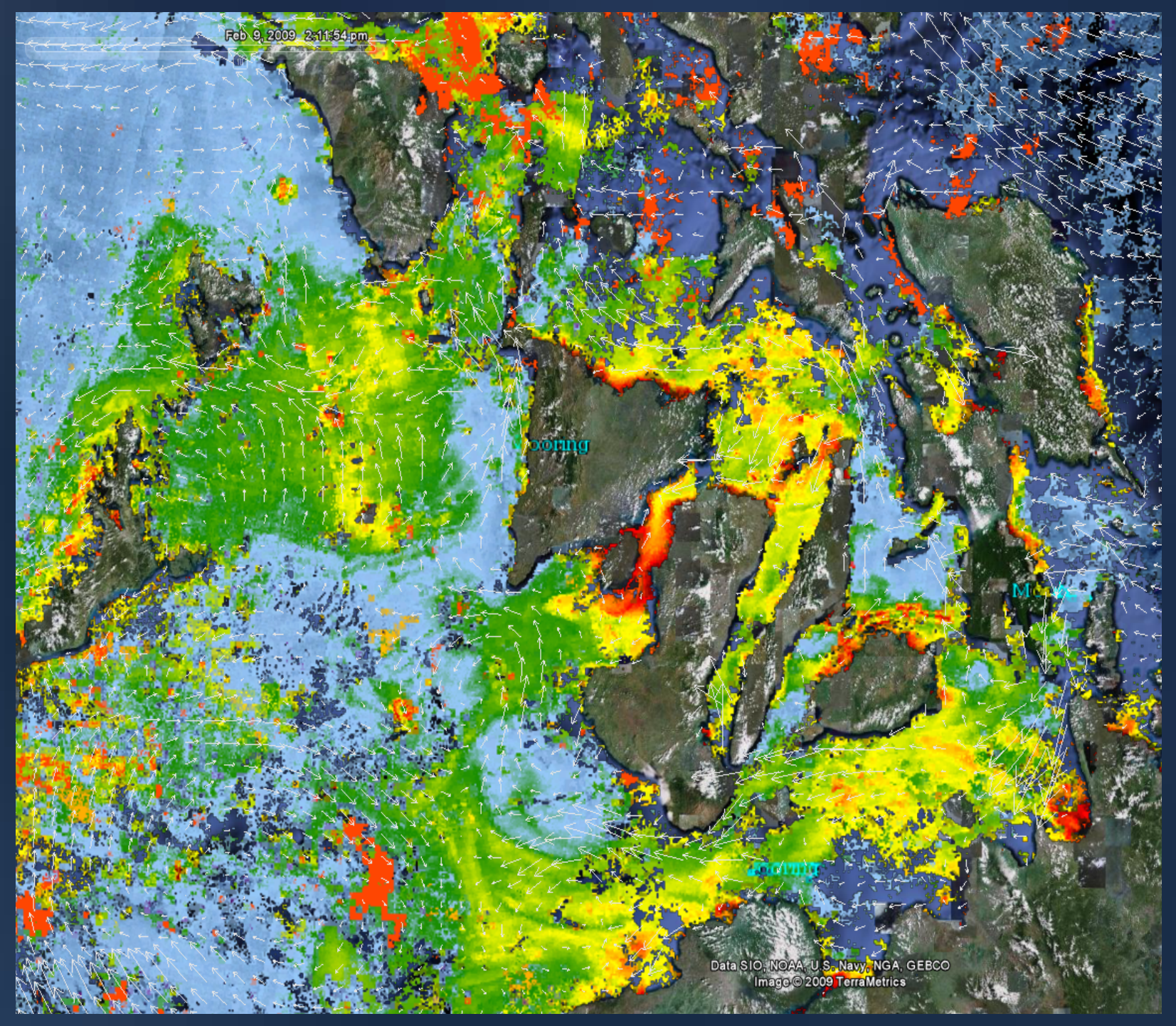
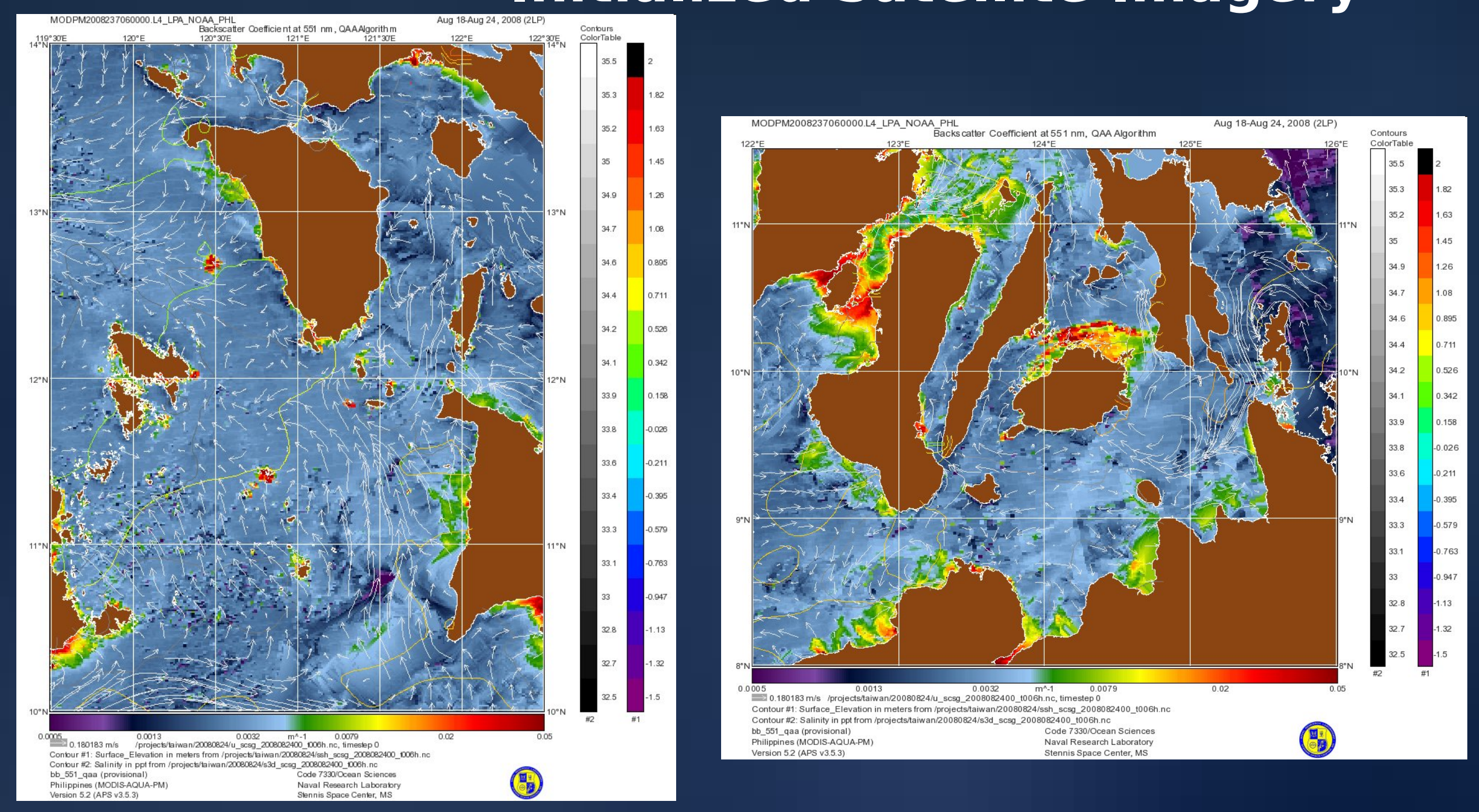
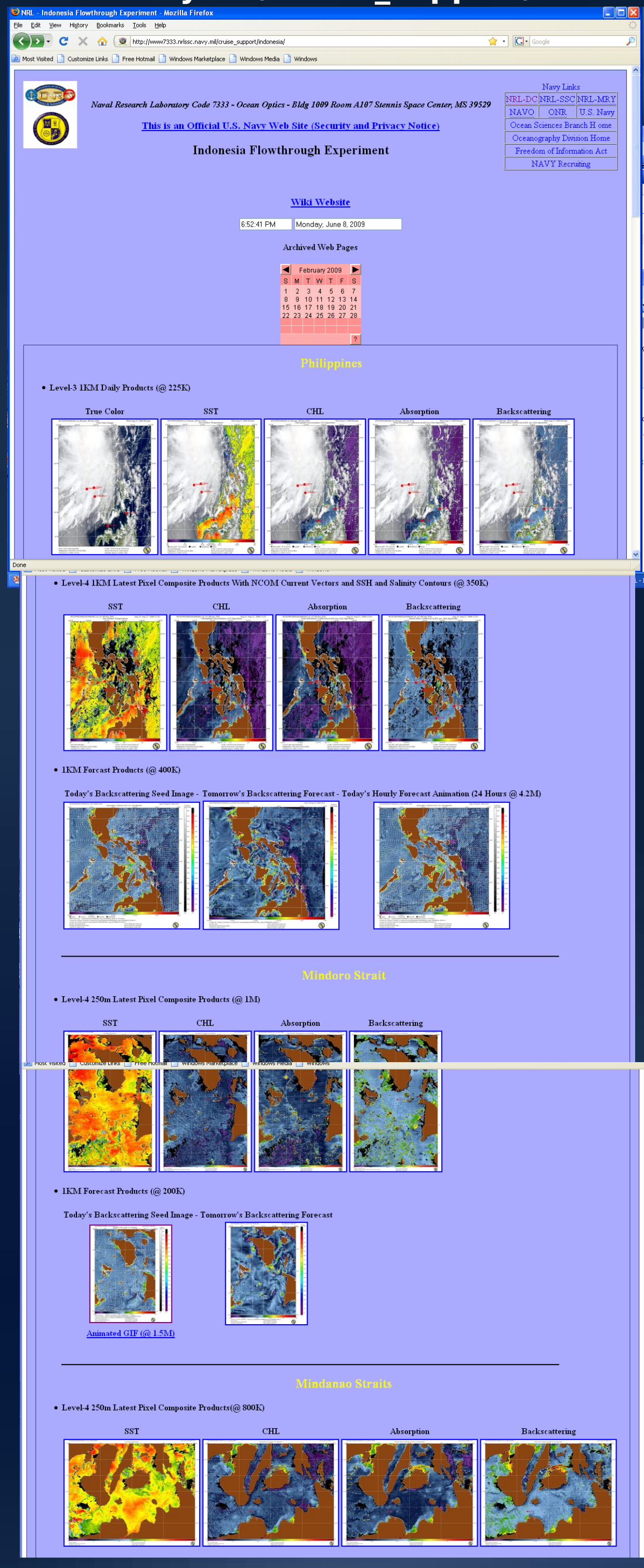


Chlorophyll And NCOM

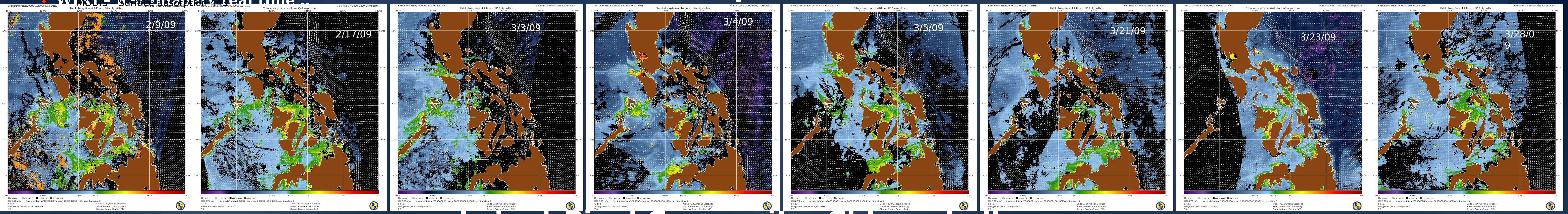


Forecast Optics Driven by NCOM and Initialized Satellite Imagery





Evolution of Surface Absorption Feb – March 2009



Latest Pixel Composite Chlorophyll

EOF Analyses

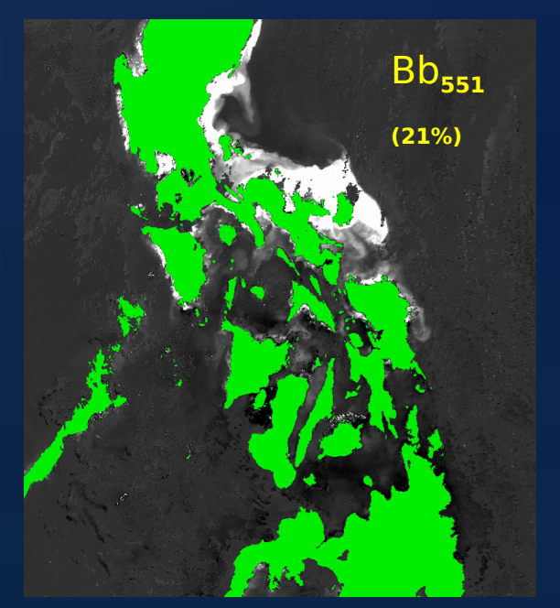
# 1 Comparison of satellite-derived IOPs and AOPs and in situ measurements in February 2008

- Revised MODIS/SeaWiFS/MERIS, archives,
- Extracted locations corresponding to each station in the Feb 08 cruise transects
- Extracted 14 parameters for every location and time of the ship transect (sst, a_{443}, bb_{551}, c531, rrs_{412}, rrs_{443}, rrs_{488}, rrs_{551}, Lt_{412}, Lt_{443}, LT_{488}, Lt_{531}, Lt_{551}) from satellite imagery
- Comparisons waiting for *in situ* measurements

# 2 Compute EOFs for Bb_{551} and a_{443} to determine their variability during the Winter Monsoon in the Philippine seas

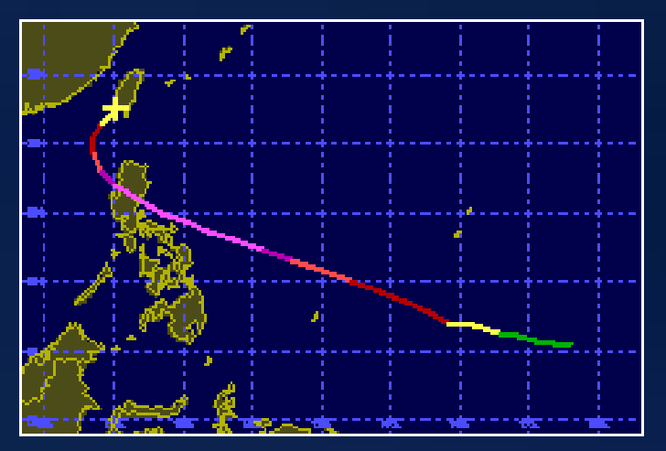
- Used MODIS imagery for the period Jan 2004 to March 2005
- Computed 10 spatial EOFs using the Sirovich and Everson (1992), and Everson and Sirovich (1995) algorithm
- First 2 EOFs shown in this presentation

Variability of the bb_{551} coefficient during the Winter Monsoon of 2004-2005 in the Philippine seas

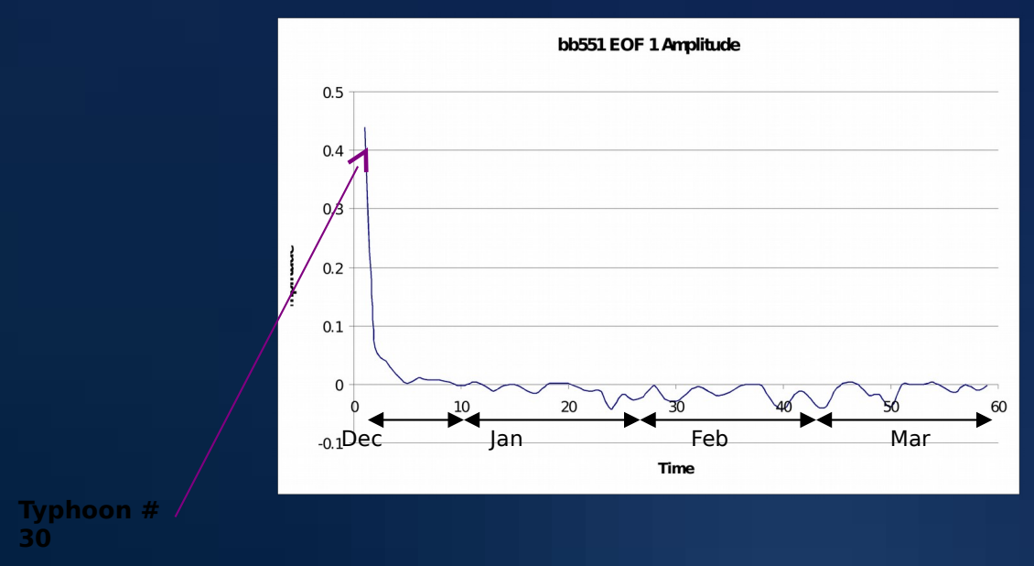


Spatial distribution of EOF 1

White = positive
Gray/black = negative

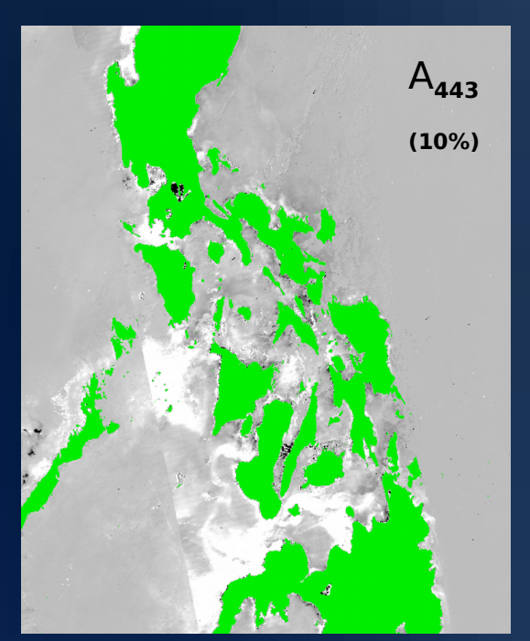


Super Typhoon #30 (28 NOV-04 DEC)
Storm - Max Winds: 130 Min Pres: 910 Category: 4



- Large increases in magnitude of the bb_{551} coeff. were observed during Typhoon # 30 mostly in the area of Typhoon impact.
- Cloudiness played a major role in decreasing the magnitude of the EOFs

Variability of the a_{443} during the Winter Monsoon of 2004-2005 in the Philippine seas



Spatial distribution of EOF 1

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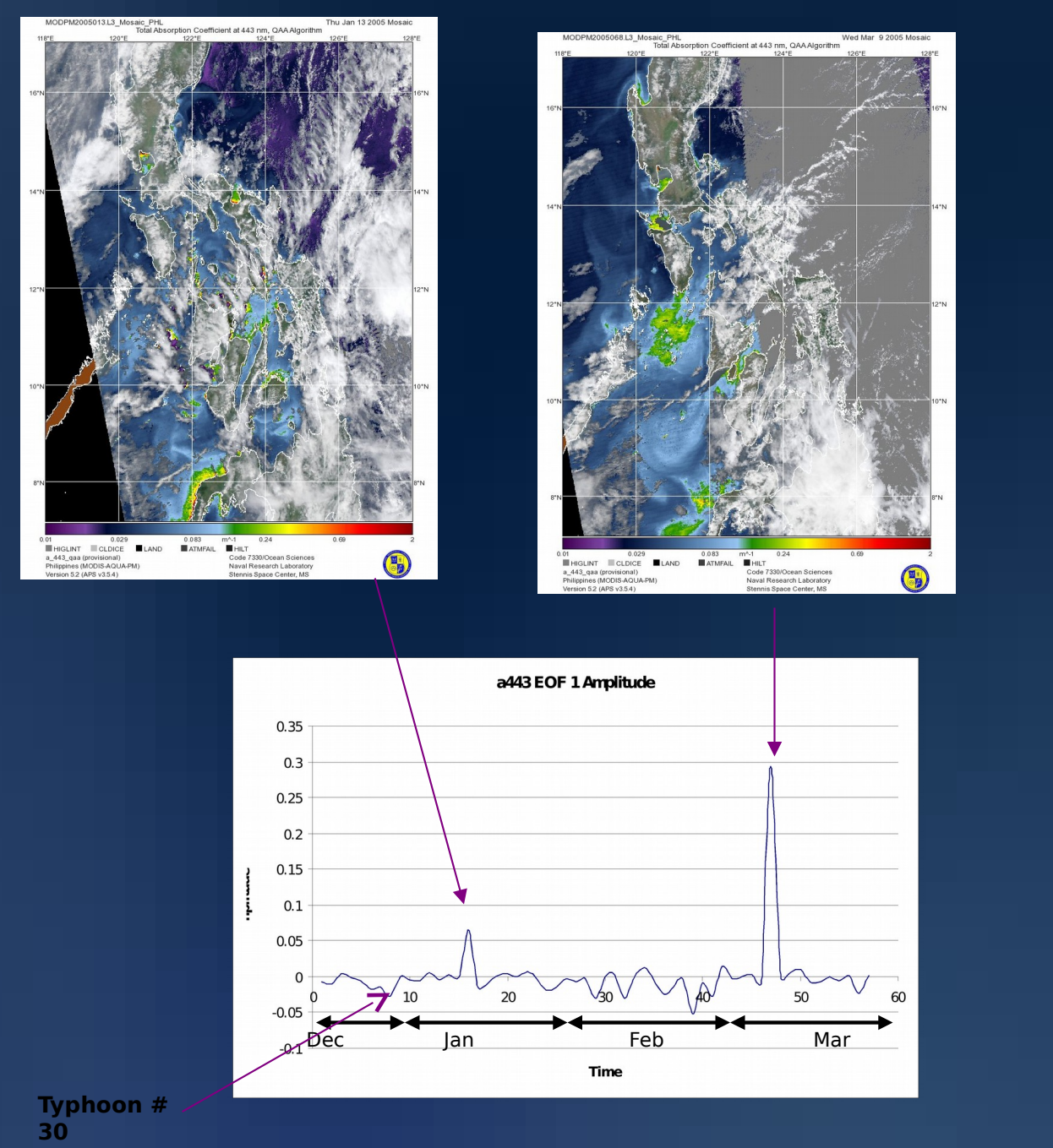
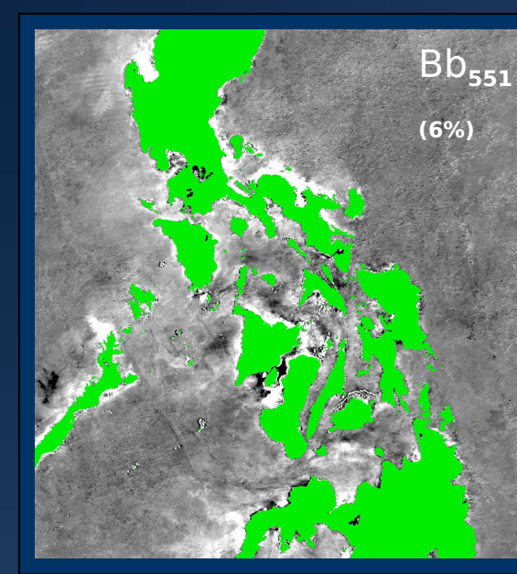
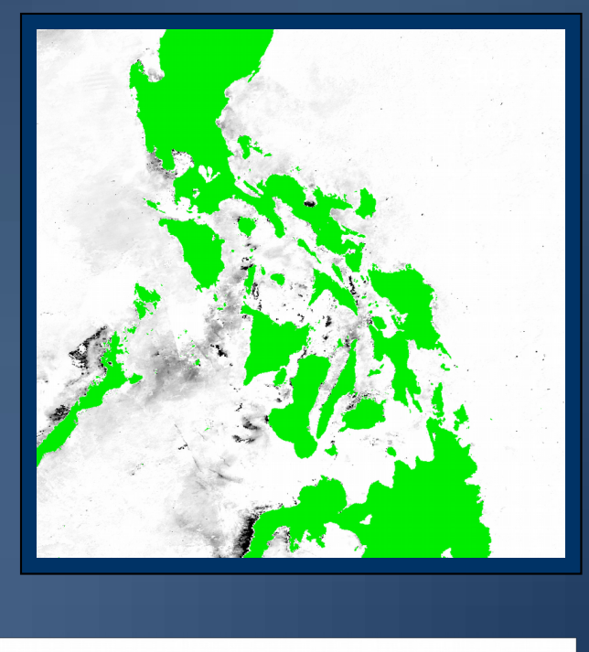


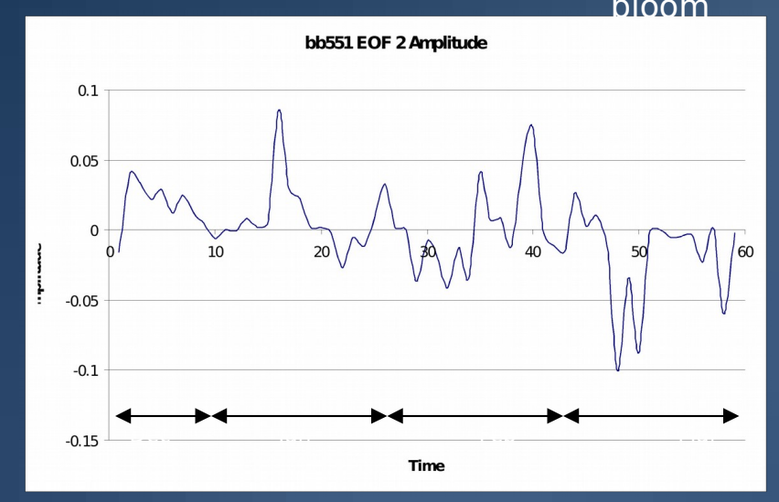
- Decreases in magnitude of the a_{443} coefficient. were observed during Typhoon # 30
- Large increases are observed on 1/13 and 3/8 2009 in the Mindoro strait and north Sulu Sea.
- Cloudiness played a major role in decreasing the magnitude of the EOFs

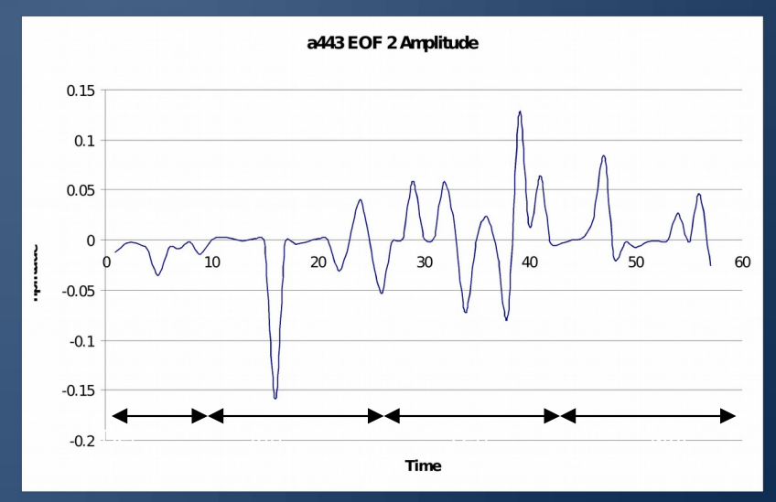
Comparison of bb_{551} EOF 2 and a_{443} EOF 2 during the Winter Monsoon of 2004-2005 in the Philippine seas



Bb_{551} positive values distribution occur along the coast, exclusively. a_{443} positive values occur everywhere, except in isolated instances (in January and February in the Mindoro Strait and west Sulu Sea. There is a tendency for the Bb_{551} to decrease from 12/04 to 3/05. The opposite is true for the A_{443}, possibly due to onset of the Spring bloom







* Clouds contributed to lower the magnitude of EOF 2

Summary:

Real time Ocean Color and SST support to Cruises

- -Fusing of Physical NCOM Currents with bio-optical Imagery
- Daily Forecast optical properties
- EOF Analysis of influence of Meteorological events on optical properties.